STATEMENT OF RESEARCH

I am an applied econometrician with research interest in empirical industrial organization and applied microeconomics. My work focuses on modeling and estimating firm and consumer heterogeneities in search model. I solve asymmetric pricing strategies and entry/exit decisions by heterogeneous firms and estimate consumer search costs, firm cost functions, and market structures.

My dissertation, “Essays on Firm Heterogeneities, Click-through Fees and Pricing in Oligopoly: Theory and Estimation”, is devoted to extending symmetric oligopoly game in which customers search for best prices to asymmetric oligopoly game. The first essay provides theory and evidence of the asymmetric pricing by sellers with heterogeneous demand functions when the information gatekeeper charges click-through fee, the second essay models the asymmetric channel use by different types of sellers and the asymmetric customer composition across the online and off-line channels. The last essay introduces a two step efficient GMM estimation using empirical distribution function and demonstrates its efficiency by simulation.

1. COMPLETED WORK
This paper examines the impact of firm heterogeneities on equilibrium pricing behavior in an online market where an information gatekeeper charges click-through fees. Under a click-through regime, a firm pays a listing fee only if it is clicked; in the Baye-Morgan framework, a firm pays the gatekeeper a lump sum regardless of its number of clicks. This difference helps rationalize the observation that some firms that persistently charge high prices none-the-less advertise prices at comparison sites. Furthermore, the presence of high price sellers distorts the "effective" number of competitors in the market, which ultimately determines the equilibrium mixed-strategy of active firms. Consistent with the theoretical model, data collected from a leading price comparison site reveals asymmetric pricing patterns across firms: some firms persistently charge high prices while other firms appear to employ similar randomized pricing strategies. Based on the model, I obtain structural estimates of the "effective" number of competitors in the market, the proportion of customers who use the price comparison site, and the welfare gains the price comparison site generates for consumers. Specifically, 32.2% of the sellers listing prices at the gatekeeper are competitors, 20% of the customers compare prices, and the gatekeeper saves more than 13% for its subscribers.

b. Dissertation Essay II: Asymmetric Pricing across Channels (under review at Management Science)
Among all the topics of price dispersion, asymmetric price dispersion between online and off-line channels and asymmetric pricing across traditional retailer, e-tailer, and
multichannel retailer are the most empirically examined, but are still controversial. The comparisons of price dispersion between online and off-line generate contradicting results. This paper intends to provide a theoretical framework that may reconcile all the conflicting empirical findings. In this paper, three types of sellers, traditional retailer, e-tailer, and multichannel retailer are jointly modeled into a market with both online and off-line channels, and the two channels have different fractions of customers that search prices. The asymmetric channel use by the sellers and the different customer compositions online and off-line result in asymmetric pricing across the three types of sellers. The online channel has relatively lower prices but not necessarily less price dispersion. Data collected from the leading price comparison site are consistent with the predicted asymmetric pricing between e-tailers and multichannel retailers.

c. Market Penetration in Price Comparison Industry (with Ian McCarthy)
This paper models market penetration of a new price comparison site into the price comparison industry with a monopoly incumbent. It shows that the incumbent can maintain its leadership in both traffic and profit even when the new site offers free service to the advertising firms.

2. WORKING PAPER
This paper introduces an efficient Generalized Method of Moment estimator based on distribution function (DF-based EGMM) and studies its asymptotic distribution as well as finite-sample performance. Asymptotically, the estimator is consistent and Normal. The method is then applied to estimating the consumer search model, which provides an interesting case because Maximum Likelihood Estimation fails. Monte Carlo study shows that DF-based EGMM performs very well with search model and is more efficient than Bayesian estimation based on theoretical distribution with no sampling error. At last, I extend the estimator to estimating distribution functions conditional on explanatory variables. For linear model, Monte Carlo study demonstrates the new estimator is more efficient than Maximum Likelihood Estimator in finite samples. The method is also attractive because of its merit of simplicity; the optimal weighting matrix is symmetric and tridiagonal, and is also free of data and parameters under estimation.

3. WORK IN PROGRESS
a. Maximum Likelihood Estimation of Consumer Search and Oligopoly Pricing in Internet Market (with Matthijs Wildenbeest)
This paper empirically examines asymmetric pricing and consume search in the Oligopoly formulated in Essay I using Maximum Likelihood Estimator.

b. Estimation of Search Costs in Markets with Heterogeneous Firms
This paper provides a search model in which firms are asymmetric and empirically estimates consumer search costs from price data alone using Maximum Likelihood
Estimator. Unlike the extant literature, which assumes homogenous firms, this paper takes account of firm heterogeneities in demand function. It will be the first paper to estimate search costs in an asymmetric oligopoly.

c. Estimation of Entry and Exit at Price Comparison Site
Since the costs for firms to list and remove prices they advertise at price comparison sites are close to zero, entry and exit at a price comparison site do not have to wait for the traditional long run. Therefore, traffic at a price comparison site forms a good example of free entry and exit. This paper empirically estimates a dynamic structural model of entry and exit at a price comparison site using the method initiated by Aguirregabiria and Mira (2007).

d. Identification and Estimation of Cost Function
This paper presents a technique for recovering cost function estimates from a model in which retailers set price when rivals’ costs are unknown. The structural estimation is based on Spulber (1995).

e. Price Dispersion within and across Stores at A Comparison Site (with Xiaoxun Gao)
It models a monopoly gatekeeper’s optimal strategy to set fee when advertising firms are heterogeneous.

REFERENCE